

CLAIMS:

1. A method of irradiating a layer including:
directing and focussing a radiation beam to a spot on said layer by means of at least one optical element;
causing relative movement of the layer relative to said at least one optical element so that, successively, different portions of the layer are irradiated and an interspace between a surface of said at least one optical element nearest to said layer is maintained; and
maintaining at least a portion of said interspace through which said radiation irradiates said spot on said layer filled with a liquid, the liquid being supplied via a supply conduit;
characterized in that at least a portion of said liquid fills up a recess through which said radiation irradiates said spot.
2. A method according to claim 1, wherein the recess has a rim portion closest to said layer extending around said radiation irradiating said spot.
3. A method according to claim 1 or 2, wherein said recess is bounded by a passage in a wall between said layer and a surface of said at least one optical element nearest to said layer and by said at least one optical element nearest to said layer.
4. A method according to claim 3, wherein a liquid outflow via said passage is maintained.
5. A method according to any one of the preceding claims, wherein a smallest thickness of said interspace is maintained of 3-1500 μm .
6. A method according to any one of the preceding claims, wherein said recess includes a concave portion of said surface of said at least one optical element nearest to said layer.

7. A method according to any one of the preceding claims, wherein the liquid flows out from at least one outflow opening in the form of at least one canal open towards said layer, said canal distributing supplied liquid longitudinally along said canal and dispensing distributed liquid towards said layer.

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8. A method according to any one of the preceding claims, wherein said interspace between said layer and said surface of said at least one optical element nearest to said layer has a thickness H, the layer and the at least one optical element are moved relative to each other at a velocity V, the liquid is supplied via an outflow opening having a width W 10 measured in a plane parallel to said layer and at a flow rate equal to $0.5 * \beta * H * (W + \alpha * H) * V$, where α is a constant between 1 and 10 and β is a constant between 1 and 3.

9. A device for directing radiation to a layer including:
at least one optical element for focussing radiation originating from said
15 radiation source to a spot on said layer;
a displacement structure for causing relative movement of the layer relative to said at least one optical element so that, successively, different portions of the layer are irradiated and an interspace between said layer and a surface of said at least one optical element nearest to said spot is maintained; and
20 an outflow opening for supplying liquid to at least a portion of said interspace through which, in operation, said radiation irradiates said spot on said layer;
characterized by a recess in a surface facing said spot, an internal surface of said recess bounding at least said portion of said interspace through which said radiation irradiates said spot.

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10. A device according to claim 9, wherein said recess has a rim portion closest to said layer extending around said portion of said interspace through which, in operation, said radiation irradiates said spot.

30 11. A device according to claim 10 or 11, wherein said recess is bounded by a passage in a wall between said spot and a surface of said at least one optical element nearest to said spot and by said surface of said at least one optical element nearest to said spot.

12. A device according to claim 11, further including a liquid supply structure communicating with said passage for maintaining a liquid outflow via said passage.
13. A device according to any one of the claims 9-12, arranged for maintaining a
5 smallest thickness of said interspace of 3-1500 µm.
14. A device according to any one of the claims 9-13, wherein said recess includes a concave portion of said surface of said at least one optical element nearest to said spot.
- 10 15. A device according to any one of the claims 9-14, wherein the at least one outflow opening is formed by at least one canal open towards said layer, for distributing supplied liquid longitudinally along said canal and dispensing distributed liquid towards said layer.